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ABSTRACT

This information digest discusses assistive technology for children and adults with mental retardation and other disabilities. Assistive technology is used to compensate for functional limitations and to enhance and increase learning, independence, mobility, communication, environmental control, and choice. Factors to consider when evaluating devices include performance, convenience and ease of use, reliability, safety, cost, availability, and repair and maintenance services. Technology users should determine their needs and evaluate whether the device meets these needs. The performance of the device should be evaluated with proof from objective, independent sources. Features to ensure convenience should also be considered, such as portability of the device, simplicity in use, and assembly and installation time. Ways to evaluate reliability and safety features are noted, along with what should be expected from the dealer or vendor and ways to become an informed consumer. A checklist is provided for making decisions about assistive technology. The checklist covers user questions, vendor questions, device performance evaluation, device convenience evaluation, device reliability and safety evaluation, and device practicality evaluation. (JDD)

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How to Evaluate and Select Assistive Technology

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How to Evaluate and Select Assistive Technology

What Is Assistive Technology?

Assistive technology is the term used to describe devices that are used by children and adults with mental retardation and other disabilities to compensate for functional limitations and to enhance and increase learning, independence, mobility, communication, environmental control and choice. It also refers to direct services that assist individuals in selecting, acquiring or using such devices.

What should be considered when evaluating devices?

User satisfaction is the ultimate criterion for device evaluation. To ensure that this criterion is met, it is frequently necessary to gather information on various aspects of the device and how the individual will use it. The main areas to consider when evaluating technology fall into five main categories:

1. Performance: Does the device work efficiently and effectively?
2. Convenience and ease of use: Does the device fit the individual? Is it convenient to use in the environment(s) that the person accesses?
3. Reliability: Does the device stand up well to normal use? Is it durable?
4. Safety: Is it safe to use?
5. Practical questions: How much does it cost? Is it readily available? Are repair and maintenance services available?

How should the performance of the device be evaluated?

Most performance information comes from the manufacturer. It is important to examine this information, but to do so with the eye of a skeptic. When performance claims are made, they should be backed up by proof. When examining claims, determine how the device was tested and who was doing the testing; the manufacturer or an independent evaluator. Proof from objective, independent sources, if available, should be sought. Also, examine under what circumstances the performance results were obtained. These circumstances should be similar to those in which the individual will use the device, and not simply under highly controlled, sterile laboratory settings.

Technology users should determine their needs and evaluate whether the device meets or exceeds these needs. It is useful to try out the device before purchasing it to better understand how the performance claims meet the individual user's needs. Remember that the fewer components to a device, the less maintenance and servicing will be required.

What features should be considered to ensure convenience?

Again, the best way to make sure that the device will be convenient, and thus used, is to try it out. Vendors or dealers may have a trial period for device use. Also, there are agencies (see resources at the end of this document) that provide lending libraries for devices which permit individuals to use them on a trial basis.

Users should consider several convenience factors. First, determine if the device is easily transported, stored, and secured when not in use. Of course, portability is relative. For some devices this means being able to carry the device around easily. For other devices, like electric wheelchairs, this means making sure that users can transport the chair with existing or readily-purchasable transportation.

To be convenient, devices should also be straightforward and simple to use. Manufacturers of common household appliances, like blenders or microwaves, have learned that ease of operation is a factor that contributes to increased sales. In some cases, the devices need to be complex to function. If this is the case, determine how much training is necessary to use the device and identify how that training is provided.

Another convenience issue is how much assembly and installation time is required. Is assembly a one-time event, or will the user have to disassemble and reassemble the device before and after each use?

Consider individual factors related to the users' abilities, preferences, and disability. If the disability condition changes over time, make sure the technology adapts to these changes. The major purpose of using technology is to increase independence. However, some devices may eventually increase dependence. Examine whether the device requires assistance for some aspect of its use and if so, are the tradeoffs worth the increased hassle and dependence?

Devices should be consistent with the individual's lifestyle, age, personality and values. Aesthetics are important, so make sure the device looks good. If the device is intended for long-term use, individuals should consider how they will look using the same device in five or ten years. Colors and patterns go out of style quicker than the life of many devices. Technology-users should determine if they will feel comfortable using the device around others and, in some cases, if they are willing to recruit others' support in the use of the device.

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Assistive Technology Evaluation Checklist

To simplify the decision-making process, The Arc has compiled the following checklist to be used by people with mental retardation and their family members when making decisions about assistive technology. While the checklist cannot provide all the questions you need to address, technology-users and their advocates who address all of the questions on this list will have taken the basic steps needed to evaluate and assess an assistive device. The previous narrative can provide more details about the process covered by each question.

Look at the questions below as you evaluate and select devices. Questions are worded so that the optimal response is always **"yes."** In some circumstances, the question is not applicable (**NA**). However, if, after completing the checklist there are too many **"no"** responses, you might want to reconsider any decisions about the device, at least until you can fill in your information gaps.

	Yes	No	N/A
✓ **Before you evaluate a device (user questions):**			
Have you identified your specific need(s) to be addressed by an assistive device?	☐	☐	☐
Are you familiar with the environment where you will use the device?	☐	☐	☐
Have you written your goals and objectives down and developed a way of tracking your progress?	☐	☐	☐
✓ **Before you evaluate a device (vendor questions):**			
Does the vendor have a good reputation?	☐	☐	☐
Does the vendor provide demonstration or trial periods?	☐	☐	☐
Is delivery available, and if so, is it prompt and reasonably priced?	☐	☐	☐
Does the vendor provide, or can the vendor direct you to required training for device use?	☐	☐	☐
Will the vendor assist you in completing paperwork and documentation needed by funding sources?	☐	☐	☐
Can the vendor modify the device, if necessary, and will the vendor provide ongoing support?	☐	☐	☐
✓ **After you identify a device:**			
◆**Device Performance Evaluation** Have you seen data to backup performance claims?	☐	☐	☐
Was the device testing conducted by an independent evaluator?	☐	☐	☐

	Yes	No	N/A
Was testing conducted under circumstances similar to those in which you will be using the device?	☐	☐	☐
Are device space, electronics and wiring requirements compatible with your use of the device? With other devices?	☐	☐	☐
◆Device Convenience Evaluation			
Have you tried out the device and found it to be comfortable and convenient to use?	☐	☐	☐
Is the device easily or reasonably transported, stored and secured?	☐	☐	☐
Can you operate all components of the device without training, or, if not, is training available?	☐	☐	☐
Are installation and assembly requirements reasonable?	☐	☐	☐
Will the device adapt to changes in your disability?	☐	☐	☐
◆Device Reliability and Safety Evaluation			
Did performance testing include reliability and durability assessment?	☐	☐	☐
Are annual and lifetime maintenance and repair costs reasonable?	☐	☐	☐
Is there a warranty available for the device?	☐	☐	☐
If there is regular maintenance, is someone available to do this work?	☐	☐	☐
Does the device meet federal standards for wiring and construction?	☐	☐	☐
Was safety testing performed in situations similar to those in which you will be using the device?	☐	☐	☐
Will the device require extensive modification and, if so, have you determined that this will not impact reliability and safety?	☐	☐	☐
◆Device Practicality Evaluation			
Is the device within your price range?	☐	☐	☐
Does the device meet requirements identified by your funding source?	☐	☐	☐
Does the device address the needs you identified earlier?	☐	☐	☐
Is the device available within a reasonable time?	☐	☐	☐
Is the device consistent with your lifestyle, age, personality and values?	☐	☐	☐
Do you like the way the device looks, and will you feel comfortable using the device around others?	☐	☐	☐
Have you compared this device with others performing similar functions?	☐	☐	☐

How should reliability and safety features be evaluated?

Reliability and safety are two important factors in device use, and they are frequently interchangeable. A reliable device is one that does what it is supposed to do without frequent repairs and maintenance. The determination of reliability should take place at the same time users are evaluating performance factors. Included in performance testing is information on reliability and durability. Users should examine under what conditions testing occurred and who conducted the testing.

Individuals should speak with someone who currently uses the same device and obtain their input about how reliable the device has been for them. They should ask about maintenance and repair costs, both initially and over the life of the device. If there is regular maintenance, they should make sure that someone reasonably accessible can perform this work. Users should also check on annual and lifetime costs, including labor and replacement parts. If there is frequent maintenance work, consider a maintenance contract, if available, which may hold costs down.

What should be expected from the dealer or vendor?

When making decisions about a device, the dealer or vendor is often the user's primary source of information. In some circumstances, professionals, like speech and language pathologists, occupational and/or physical therapists, serve as intermediaries in the purchasing process and can make recommendations from their experience with the device. In other cases, users and their families deal directly with the vendor. In either case, there are a number of questions to be considered. First, the reputation of the company should be examined, as well as how many years it has been in business and how many of the devices it has manufactured. The availability of knowledgeable, user-oriented staff is one indicator of a good company. Information about the company can also be gained by talking with other technology-users.

Potential purchasers should determine if there are demonstration or trial periods available and understand exactly how long they have to return the device if they are not satisfied. They should inquire about a warranty and, if available, make sure that the time period covered is adequate. When purchasing a device, they should ask about delivery: How long does delivery take, and is it free or does it have a cost associated with it? Are there geographic limits for delivery? If there are installation procedures, are these included in the cost or additional.

Likewise, it should be determined if device training sessions exist, where they are offered and if there are additional costs. Funding sources for devices often require additional paperwork and documentation. It should also be determined if the vendor is willing to assist in this process.

Other considerations should include whether the vendor or dealer can make modifications to the device, if necessary, and if they will provide technical support and troubleshooting. Information should also be gathered about service contracts, what conditions exist for emergency service situations, standard repair rates, and whether there are loaner devices available for use.

Where can professional assistance to conduct an evaluation be located?

Currently, there are no national standards to accredit assistive technology professionals. Several disciplines are traditional sources for evaluation, dependent upon the type of device, including speech and language pathologists, occupational and/or physical therapists, rehabilitation specialists and adaptive physical educators. Many simple-to-use technologies that focus on environmental control, including many computer and switch-related devices, can be accessed by users and their families without professional assistance.

Where should technology-users begin?

The first step in the process is to become an informed consumer. There are a number of agencies and resources that can assist you in this process. Among the more valuable resources are other technology-users. Contact them and learn from their experiences. The National Information Center for Children and Youth with Disabilities (NICHCY) publishes a News Digest titled 'Technology: Becoming an Informed Consumer' that can be obtained for no cost from NICHCY by calling 1-800-695-0285.

A federal technology assistance law has funded technology centers in each state. These centers are charged with linking consumers to assistive technology resources, including people who can provide evaluation and assessment services. The RESNA Technical Assistance Project has the responsibility of directing consumers to centers within each state and can be contacted at 1700 N. Moore St., Suite 1540, Arlington, VA 22209-1903, (703) 524-6686. Another source of information is the Alliance for Technology Access, 1307 Solano Ave., Albany, CA 94706-1888, (415) 528-0746. The Arc maintains a data base of state, regional and national assistive technology resources. Contact The Arc at 500 E. Border St., Suite 300, Arlington, TX 76010, (800) 433-5255.

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